

Application Serial No. 10/026,451  
Atty. Docket No. 011758

### **REMARKS**

Claims 1-11 are pending in the application. Claim 11 has been withdrawn. Claim 2 is cancelled.

Claim 1 has been amended in order to more particularly point out, and distinctly claim the subject matter to which the applicants regard as their invention. The applicants respectfully submit that no new matter has been added. It is believed that this Amendment is fully responsive to the Office Action dated **April 29, 2003**.

### **The Drawings**

The Office Action requested that Figures 1 - 4 be labeled "Prior Art." Taking the Examiner's comments into consideration, Figures 1-4 have been amended to include the legend "Prior Art". Therefore, entry of substitute figures 1-4 is respectfully requested.

### **Rejections Under 35 USC §102**

Claims 1, 2 and 8 were rejected under 35 USC §102 over **Almogy et al.** (U.S. Patent No. 5,661,590).

According to Almogy et al., the slanted, flat, cleaved side surface for absorbing radiation shown in FIG. 3 is "a cleaved facet" "lapped to a 45 degree angle" (see column 4, line 34 of Almogy et al.), which means that a cleavage surface is formed and then lapped to a 45 degree angle.

The present invention is different from the invention taught by Almogy in that "the flat side face is easily achieved by simple cleavage operation" (see page 7, line 28 of the

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specification) . "It is difficult to form an optically flat plane by the selective etching and the dicing" (see page 6, line 23 of the specification).

Therefore, claim 1 patentably distinguishes over the prior art relied upon by reciting,

"A semiconductor photo detecting device, comprising: a semiconductor substrate having a flat side face; and a photo absorption layer formed on said semiconductor substrate, wherein an entire part of said flat side face is inclined to a line perpendicular to a principle plane of said semiconductor substrate; and said flat side face is substantially perpendicular to an incoming photo signal, wherein said flat side face is a cleavage face of said semiconductor substrate." (Emphasis Added)

Therefore, withdrawal of the rejection of Claims 1, 2 and 8 under 35 USC §102 over **Almogy et al.** (U.S. Patent No. 5,661,590) is respectfully requested.

Claims 1 and 8 - 10 were rejected under 35 USC §102 over **JP 11-135823**. As the Examiner describes, JP '823 discloses, in paragraph [0018], "dicing" at any desired angle. "Diced" is also different from "cleaved".

The present invention is different from the invention taught by JP ' 823 in that "the flat side face is easily achieved by simple cleavage operation" (see page 7, line 28 of the specification).

Therefore, claim 1 patentably distinguishes over the prior art relied upon by reciting,

"A semiconductor photo detecting device, comprising: a semiconductor substrate having a flat side face; and a photo absorption layer formed on said semiconductor substrate, wherein an entire part of said flat side face is inclined to a line perpendicular to a principle plane of said semiconductor substrate; and said flat side face is substantially perpendicular to an incoming photo signal, wherein said flat side face is a cleavage face of said semiconductor substrate." (Emphasis Added)

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Therefore, withdrawal of the rejection of Claims 1 and 8 - 10 under 35 USC §102 over **JP 11-135823** is respectfully requested.

Claims 1 and 7 were rejected under 35 USC §102 over **Spaeth et al.** (U.S. Patent No. 5,218,223).

Spaeth describes that “these surfaces are inclined relative to one another and need not necessarily be planer surfaces”. In other words, the surfaces may be of a first order, but under certain conditions may even be advantageously fashioned as surfaces of the second or of a higher order so that a focusing of the light or other beam is also achieved (see column 2, lines 50-56 of Spaeth). This description implies that the slanted surface 5 is not "cleaved", but may be "polished".

The present invention is different from the invention taught by Spaeth in that "the flat side face is easily achieved by simple cleavage operation" (see page 7, line 28 of the specification).

Therefore, claim 1 patentably distinguishes over the prior art relied upon by reciting,

“A semiconductor photo detecting device, comprising: a semiconductor substrate having a flat side face; and a photo absorption layer formed on said semiconductor substrate, wherein an entire part of said flat side face is inclined to a line perpendicular to a principle plane of said semiconductor substrate; and said flat side face is substantially perpendicular to an incoming photo signal, wherein said flat side face is a cleavage face of said semiconductor substrate.” (Emphasis Added)

Therefore, withdrawal of the rejection of Claims 1 and 7 under 35 USC §102 over

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**Spaeth et al.** (U.S. Patent No. 5,218,223) is respectfully requested.

Claims 1, 2, 8 and 9 were rejected under 35 USC §102 over **Ng** "Complete Guide to Semiconductor Devices."

The "polished 45 degree facet" shown in FIG. 56.1 (a) of **Ng** is "polished". That is, the edge may be a "cleavage plane" before polishing, but the edge is "polished" to make a 45 degree angle.

The present invention is different from the invention taught by **Ng** in that "the flat side face is easily achieved by simple cleavage operation" (see page 7, line 28 of the specification).

Therefore, claim 1 patentably distinguishes over the prior art relied upon by reciting,

"A semiconductor photo detecting device, comprising: a semiconductor substrate having a flat side face; and a photo absorption layer formed on said semiconductor substrate, wherein an entire part of said flat side face is inclined to a line perpendicular to a principle plane of said semiconductor substrate; and said flat side face is substantially perpendicular to an incoming photo signal, wherein said flat side face is a cleavage face of said semiconductor substrate." (Emphasis Added)

Therefore, withdrawal of the rejection of Claims 1, 2, 8 and 9 under 35 USC §102 over **Ng** is respectfully requested.

### **Rejections Under 35 USC §103**

Claims 4 and 6 were rejected under 35 USC §103 over **Ng**. Claims 4 and 6 are allowable by virtue of their dependence upon an allowable independent claim. Therefore, withdrawal of the rejection of Claims 4 and 6 under 35 USC §103 over **Ng** is respectfully requested.

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Claim 3 was rejected under 35 USC §103 over JP'823. Claim 3 is allowable by virtue of their dependence upon an allowable independent claim. Therefore, withdrawal of the rejection of Claim 3 under 35 USC §103 over JP'823 is respectfully requested.

Claim 5 was rejected under 35 USC §103 over JP'823 and further in view of Makiuchi'114. Claim 5 is allowable by virtue of their dependence upon an allowable independent claim. Therefore, withdrawal of the rejection of Claim 5 under 35 USC §103 over JP'823 and further in view of Makiuchi'114 is respectfully requested.

### **Conclusion**

In view of the aforementioned amendments and accompanying remarks, claims, as amended, are in condition for allowance, which action, at an early date, is requested.

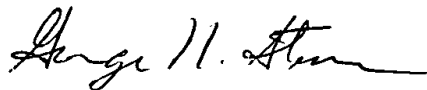
If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

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In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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PATENT TRADEMARK OFFICE

Enclosures: 3 sheets redlined drawings  
3 sheets corrected formal drawings

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